

# Determination of health care awareness at the patients toward diabetic foot in Al-Hila teaching hospital.

Dr. Amean A. Yasir,  
PhD, Babylon university ,College of Nursing

## الخلاصة:

الهدف:- تهدف الدراسة لتحديد الوعي الصحي للمرضى المصابين بداء القدم السكري

المنهجية:- دراسة وصفية اقيمت في مستشفى الحله التعليمي ، والعياده الاستشايه في المستشفى واستغرقت الدراسة الفترة من 2010\7\2 الى 2011\7\2 وشملت عينة البحث (200) مريض، اختيرت بطريقة غرضية (غير احتمالية). صممت استبانة البحث لغرض تحقيق أهداف الدراسة، وجمعت المعلومات من خلال هذه الاستبانة وبطريقة المقابلة وتم تحليل البيانات من خلال تطبيق أسلوب الإحصاء الوصفي (التكرار، النسبة المئوية) والاسلوب الاحصائي الاستنتاجي (معامل الارتباط بيرسن والوسط الحسابي الموزون) باستخدام حقيبة التحليل الإحصائي (SPSS 16.0).

النتائج:- أظهرت الدراسة إن معدل العمر يتراوح بين (47-56) سنة وأغلبهم من الذكور المتزوجين العاملون وغالبيتهم من خريجي الاعدادية يسكنون المدينة ودخلهم الشهري يكفي نوع ما والغالبية يدخنون. وهناك وعي صحي متوسط اتجاة مضاعفات داء السكر على القدم السكري.

التوصيات:- أوصت الدراسة بتصميم أو بناء برامج تثقيفية لزيادة الوعي الصحي لمرضى السكر باتجاه القدم السكري وخاصة المشخصين حديثا بالسكر والحاجة الى ممرضات ممرضات اختصاص في مراكز مرضى السكر وإيقاف أو تقليل التدخين ان امكن مع الفحص الدوري للقدم لمرضى السكر والاصحاء.

## Abstract:

**Objective:** - The aim of the study is to determine health care awareness at the patients toward diabetic foot.

**Methodology:** - A descriptive study was carried out in Al- Hila teaching hospital for the period of 2\7\2010 to 2\7\2011. A purposive (non probability) sample of (200) patients.

Questionnaire was constructed for the purpose of the study. Data were collected through the application of the questionnaire and interview technique. Data were analyzed through descriptive statistical approach (frequency & percentage) and inferential statistical approach (Pearson correlation and mean of score) by using of SPSS version 16.0.

**Results:** The study results indicated that the range of age was between (47-56) year and most of them were male, married and employed, secondary graduate they live in urban, barely sufficient of monthly income and the majority were smoking. There is moderate health care awareness of diabetic complications toward diabetic foot.

**Recommendation:-**The study recommended that educational programs should be constructed or designed for patients toward health care awareness for newly diagnosis with diabetic, need for specialized nurses in the diabetic center and stops or reduce smoking and periodic foot exam in diabetic patient and healthy people .

**Keyword:- health care awareness, diabetic foot**

PhD. Babylon University\Nursing College

## Introduction:-

Diabetic foot based on (WHO) criteria is an infection, ulceration and/or destruction of deep tissues associated with neurological abnormalities and various degrees of peripheral vascular disease in the lower limb. Also it is consider as a complication of chronic disorder of altered carbohydrate, fat, and protein metabolism due to either a relative or absolute lack of insulin or one of endocrine dysfunction<sup>(1)</sup>.

Diabetes can cause damage to nerves and vascular supply of the feet and legs. Patients with neuropathy have no sensation and therefore, might be an aware of any trauma to their feet<sup>(2)</sup>.

For all that it seems as a simple condition, diabetes is a daunting illness in that has so many potential complications such as eye disease, kidney disease, circulatory disease, the arterial disease and diseases of the nerves<sup>(3)</sup>.

Among patient with diabetes mellitus, chronic foot ulcers remain one of the primary indicators for hospitalization and can result to adverse clinical outcomes with close to (15%) of all diabetics who developing a lower extremity ulceration, at some points in their life times<sup>(4)</sup>.

Diabetic foot disease is a major health problem, and the association with morbidity and mortality is unacceptably high, however, amputations are not inevitable, and the strategies that available to help patients with diabetes who have feet disease can be effective in reducing morbidity<sup>(5)</sup>.

Consequently, it is imperative that nurse recognize the symptoms of early on set neuropathy and incorporate with patient teaching for proper foot care in order to minimize the like hood of progression of diabetic foot ulceration<sup>(6)</sup>.

Foot is an integral part of nursing care and the nurse must be accountable and responsible for such care. The major focus of nursing care of any diabetic patient should include extensive information on foot care and the opportunity to practice it<sup>(7)</sup>.

## **Methodology:-**

A descriptive design study using the assessment approach for determination of the health care awareness toward diabetic foot. The study was carried out during the period of 2\7\2010 to 2\7\2011.

The setting of the study includes inpatient (surgical wards, consultation unit ) from the following:-

- Al- Hila teaching hospital.

The teaching hospitals are composed of medical and surgical wards, and medical outpatient and surgical outpatient.

A purposive “non probability” sample of (200) patient with diabetic foot were selected from Al- Hila Teaching Hospitals.

The study instrument was a questionnaire which was developed by the investigator for the purpose of data collection. It was consisted of two parts: The part 1- General information:- It was consisted of (8) items which included ( age, gender, marital status, educational level, occupation, residence, monthly income ,and smoking). 2- The Part 2-Health care awareness: It consisted (20) item concerned health care awareness for diabetic foot problems<sup>(8)</sup>, and some modified from researcher. The items were rated in scale as yes and no, and then each selection has a special scale for a statistical application ( 2 and 1).

The content validity of the instrument was established through a panel of (10) experts to investigate the content of the questionnaire for clarity and adequacy in order to achieve the present study's objectives. The mean of experience was (21.4) year and (Sd=4.1), the experts agreed that (20) item of health care awareness were clear and adequate for the measurement of the study.

I n order to determine the test re-test reliability for health care awareness score, a pilot study was carried out on (10) patient with diabetic foot for two different periods, Pearson Correlation Coefficient was ( $r= 0.87$ ).

The data were collected through the utilization of a constructed questionnaire, using the interview technique. Interview took a timetable of (25) minute for each patient. The assessment was conducted during the period of 1\10\2010 to 1\5\2011.

Data were analyzed through the application of:

**A-Descriptive statistical data analysis approach:**

- 1-Frequency.
- 2-Percentage.

**B-Inferential statistical data analysis approach:**

- 1-Pearson correlation coefficient.
- 2-Mean of scores.

**Results:**

**Table:1. Distribution of the study sample according to their age.**

| Age          | Frequency | percent | Cumulative percent |
|--------------|-----------|---------|--------------------|
| 3-14         | 16        | 8.0     | 8.0                |
| 15-24        | 12        | 6.0     | 14.0               |
| 25-36        | 24        | 12.0    | 26.0               |
| 37-46        | 36        | 18.0    | 44.0               |
| 47-56        | 52        | 26.0    | 70.0               |
| 57-66        | 28        | 14.0    | 84.0               |
| 67 and above | 32        | 16.0    | 100.0              |
| total        | 200       | 100.0   |                    |

This table shows that the majority of the sample were (47-56)year old who were accounted for (26%).

**Table 2. Distribution of the study sample according to their gender.**

| Gender | Frequency | percent | Cumulative percent |
|--------|-----------|---------|--------------------|
| Male   | 149       | 74.5    | 74.5               |
| Female | 51        | 25.5    | 100.0              |
| Total  | 200       | 100.0   |                    |

This table shows that majority of the sample were males (149) patient who were accounted for (74.5%).

**Table 3. Distribution of the study sample according to their marital status.**

| Marital status | Frequency | percent | Cumulative percent |
|----------------|-----------|---------|--------------------|
| Married        | 111       | 55.5    | 55.5               |
| Single         | 45        | 22.5    | 78.0               |
| Widowed        | 17        | 8.5     | 86.5               |
| Divorced       | 16        | 8.0     | 94.5               |
| separated      | 11        | 5.5     | 100.0              |

|              |            |              |  |
|--------------|------------|--------------|--|
| <b>Total</b> | <b>200</b> | <b>100.0</b> |  |
|--------------|------------|--------------|--|

This table shows that majority of the sample were married( 111) patients who were accounted for 55.5%).

**Table 4. Distribution of the study sample according to their educational level.**

| <b>Educational level</b> | <b>Frequency</b> | <b>percent</b> | <b>Cumulative percent</b> |
|--------------------------|------------------|----------------|---------------------------|
| No read & write          | 20               | 10.0           | 10.0                      |
| Read & write             | 32               | 16.0           | 26.0                      |
| Primary graduate         | 40               | 20.0           | 46.0                      |
| Intermediate graduate    | 39               | 19.5           | 65.5                      |
| Secondary graduate       | 46               | 23.0           | 88.5                      |
| Institute graduate       | 18               | 9.0            | 97.5                      |
| College and above        | 5                | 2.5            | 100.0                     |
| <b>Total</b>             | <b>200</b>       | <b>100.0</b>   |                           |

This table shows that majority of the sample were secondary graduate (46) patient who were accounted for (23%).

**Table 5. Distribution of the study sample according to their occupation.**

| <b>Occupation</b> | <b>Frequency</b> | <b>percent</b> | <b>Cumulative percent</b> |
|-------------------|------------------|----------------|---------------------------|
| Employed          | 145              | 72.5           | 72.5                      |
| Unemployed        | 55               | 27.5           | 100.0                     |
| <b>Total</b>      | <b>200</b>       | <b>100.0</b>   |                           |

This table shows that the majority of the samples were employed (145) patient who were accounted (72.5%).

**Table 6. Distribution of the study sample according to their monthly income.**

| <b>Monthly income</b> | <b>Frequency</b> | <b>percent</b> | <b>Cumulative percent</b> |
|-----------------------|------------------|----------------|---------------------------|
| Sufficient            | 24               | 12.0           | 12.0                      |
| Barely sufficient     | 97               | 48.5           | 60.5                      |
| Insufficient          | 79               | 39.5           | 100.0                     |
| <b>Total</b>          | <b>200</b>       | <b>100.0</b>   |                           |

This table shows that majority of the study samples were barely sufficient of monthly income (97) patients who they were accounted for (48.5%).

**Table 7. Distribution of the study sample according to their residence.**

| <b>Residence</b> | <b>Frequency</b> | <b>percent</b> | <b>Cumulative percent</b> |
|------------------|------------------|----------------|---------------------------|
| <b>Rural</b>     | <b>61</b>        | <b>30.5</b>    | <b>30.5</b>               |
| <b>Urban</b>     | <b>139</b>       | <b>69.5</b>    | <b>100.0</b>              |
| <b>Total</b>     | <b>200</b>       | <b>100.0</b>   |                           |

This table shows that majority of the study samples were live in urban (139) patient who were accounted for (69.5%).

**Table 8. Distribution of the study sample according to their smoking.**

| <b>Smoking</b> | <b>Frequency</b> | <b>percent</b> | <b>Cumulative percent</b> |
|----------------|------------------|----------------|---------------------------|
| <b>Yes</b>     | <b>132</b>       | <b>66.0</b>    | <b>66.0</b>               |
| <b>No</b>      | <b>68</b>        | <b>34.0</b>    | <b>100.0</b>              |
| <b>Total</b>   | <b>200</b>       | <b>100.0</b>   |                           |

This table shows that majority of the study sample were smokers (132) patient who were accounted for (66%)

**Table 9. Distribution of the study sample according to their score of health care awareness.**

| <b>Score</b> | <b>Frequency</b> | <b>percent</b> | <b>Cumulative percent</b> |
|--------------|------------------|----------------|---------------------------|
| <b>27</b>    | <b>2</b>         | <b>1.0</b>     | <b>1.0</b>                |
| <b>28</b>    | <b>1</b>         | <b>0.5</b>     | <b>1.5</b>                |
| <b>29</b>    | <b>11</b>        | <b>5.5</b>     | <b>7.0</b>                |
| <b>30</b>    | <b>16</b>        | <b>8.0</b>     | <b>15.0</b>               |
| <b>31</b>    | <b>25</b>        | <b>12.5</b>    | <b>27.5</b>               |
| <b>32</b>    | <b>38</b>        | <b>19.0</b>    | <b>46.5</b>               |
| <b>33</b>    | <b>37</b>        | <b>18.5</b>    | <b>65.0</b>               |

|              |            |              |       |
|--------------|------------|--------------|-------|
| 34           | 34         | 17.0         | 82.0  |
| 35           | 22         | 11.0         | 93.0  |
| 36           | 11         | 5.5          | 98.5  |
| 37           | 3          | 1.5          | 100.0 |
| <b>Total</b> | <b>200</b> | <b>100.0</b> |       |

This table shows that majority of the sample were score 32 (38) patient who were accounted for (19%). The table indicated that if the score less than 30 mean there is unawareness (15%) in cumulative percent and the remaining (85%) were awareness.

**Table 10. Pearson correlation or relationship between (age, gender, marital status, occupation, educational level, residence, monthly income, and smoking) with awareness of the patients for diabetic foot.**

| Correlation           | Age           | Gender        | Marital status | Occupation    | Education     | Residence     | Monthly income | Smoking       |
|-----------------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|---------------|
| <b>Gender</b>         | <b>0.049</b>  | <b>1</b>      |                |               |               |               |                |               |
| <b>Marital status</b> | <b>0.107</b>  | <b>0.004</b>  | <b>1</b>       |               |               |               |                |               |
| <b>Occupation</b>     | <b>-0.146</b> | <b>0.025</b>  | <b>0.084</b>   | <b>1</b>      |               |               |                |               |
| <b>Education</b>      | <b>0.070</b>  | <b>0.074</b>  | <b>-0.071</b>  | <b>-0.176</b> | <b>1</b>      |               |                |               |
| <b>Residence</b>      | <b>0.025</b>  | <b>0.163</b>  | <b>0.056</b>   | <b>-0.078</b> | <b>0.046</b>  | <b>1</b>      |                |               |
| <b>Monthly income</b> | <b>0.006</b>  | <b>0.000</b>  | <b>-0.076</b>  | <b>0.015</b>  | <b>0.021</b>  | <b>0.095</b>  | <b>1</b>       |               |
| <b>Smoking</b>        | <b>-0.174</b> | <b>0.016</b>  | <b>0.069</b>   | <b>0.125</b>  | <b>-0.076</b> | <b>0.017</b>  | <b>0.037</b>   | <b>1</b>      |
| <b>Awareness</b>      | <b>-0.030</b> | <b>-0.064</b> | <b>0.051</b>   | <b>0.052</b>  | <b>0.010</b>  | <b>-0.128</b> | <b>-0.142</b>  | <b>-0.094</b> |

This table shows that there is no relationship between demographic characteristics with health care awareness that mean health care awareness for all.

**Table 11. Descriptive statistical for items of health care awareness.**

| No       | Item  | Yes        | No         | M.S         | Severity |
|----------|---|------------|------------|-------------|----------|
| <b>1</b> | <b>Daily feet washing with warm water and natural soap</b>  | <b>59</b>  | <b>141</b> | <b>1.30</b> | <b>M</b> |
| <b>2</b> | <b>Drying the feet gently from the tarsal, metatarsal, instead of using traction</b>                      | <b>47</b>  | <b>153</b> | <b>1.23</b> | <b>L</b> |
| <b>3</b> | <b>Avoid walking without wearing shoes</b>  | <b>168</b> | <b>32</b>  | <b>1.84</b> | <b>H</b> |
| <b>4</b> | <b>Avoid drying the skin by using cosmetic ointment, and avoid using ointment between metatarsal bone</b> | <b>165</b> | <b>35</b>  | <b>1.83</b> | <b>H</b> |

|    |  |             |             |             |          |
|----|--|-------------|-------------|-------------|----------|
| 5  | Cleaning the nails, with careful attention for the inside and around them  | 153         | 47          | 1.77        | H        |
| 6  | Examining the nail of the big toe for any thickness, dryness or else   | 116         | 84          | 1.58        | M        |
| 7  | Cutting the nails directly after bathing and in straight form  | 114         | 86          | 1.57        | M        |
| 8  | Examining the nails and spaces between toes for any fungal infection   | 156         | 44          | 1.78        | H        |
| 9  | Don't apply any heat (thermal effect) on the feet without physician counseling   | 155         | 45          | 1.78        | H        |
| 10 | Daily feet examination for any change in the skin color, temperatures and make comparison between the Rt & Lt foot for any skin breakdown, redness, and avoid slipping the foot while exam | 112         | 88          | 1.56        | M        |
| 11 | Avoid wearing constructed shoes  | 176         | 24          | 1.88        | H        |
| 12 | Wearing shoes made from gently materials   | 117         | 83          | 1.59        | M        |
| 13 | Take the medical advice when wearing the shoes   | 166         | 34          | 1.83        | H        |
| 14 | Examine the shoes for any folding in the internal coat by using the hand   | 66          | 134         | 1.33        | M        |
| 15 | Make sure about the socks softening  | 129z        | 71          | 1.65        | M        |
| 16 | Don't use curative substances more than need it for the foot and nails   | 97          | 103         | 1.49        | M        |
| 17 | Treating for any injuries, infections occurred at once   | 167         | 33          | 1.84        | H        |
| 18 | Don't use iodine or chloride detergent   | 173         | 27          | 1.87        | H        |
| 19 | If you have injury, putting the feet in relax position at the body level until explain it to doctor  | 78          | 122         | 1.39        | M        |
| 20 | Take counseling from the doctor about any disorders in the feet like pain, swelling, redness and inflammation  | 122         | 78          | 1.61        | M        |
|    | <b>Total</b>   | <b>2535</b> | <b>1464</b> | <b>1.64</b> | <b>M</b> |

This table indicated that the mean of score is low severity for items (2), and high severity for items (3, 4, 5, 8, 9, 11, 13, 17, and 18), and moderate on the remaining items.

## Discussion:

The presents an interpretation of the study findings and discussion of the evidence, this was supported through the available literature.

**The findings of the study sample shows that the majority of the sample were (47-56)year old who were accounted for (26%).**this result was similar to another research who noted that the mean age of the sample was (58) years <sup>(9)</sup>.The patients in this age group, which considered a

productive period as far as being established in their occupation and financially independent. Because of this, the patient will be under stress because of his/ her disease and its complications

**The results shows that majority of the sample were males (149) patient who were accounted for (74.5%) and married 111) patient who were accounted for 55.5%).** This result was in agreement with another research who had found that (63%) from the study sample were males and (78%) of them were married<sup>(10)</sup>.

**The results shows that majority of the sample were secondary graduate (46) patient who were accounted for (23%).** This result is supported by another study who had found that the level of education of the study sample among Bahraini adults with diabetes mellitus was illiterate<sup>(11)</sup>. WHO reported that to save feet limbs from gangrene, ulceration and infection by providing preventive medicine and patient education and also preventive of diabetic foot depends very largely upon patient education. That mean the low educated of the patients was the risk factors for diabetic foot.

The researcher results shows that the majority of the samples were employed (145) patient who were accounted (72.5%) .

The researcher results shows that majority of the study samples were barely sufficient of monthly income (97) patient who they were accounted for (48.5%).

This table shows that majority of the study samples were live in urban (139) patient who were accounted for (69.5%) about the result of researcher .

The results shows that majority of the study sample were smokers (132) patient who were accounted for (66%). this result was in agreement with another study result who mentioned that (62%) from the patients were smokers<sup>(12)</sup>. There was association and effect between hyperglycemia and number of cigarettes smoked/day and a positive association with total smoking exposure as measured by pack-years<sup>(12)</sup>.

WHO reported that diabetes leads to impaired circulation making the extremities (especially the feet) very vulnerable to injury and infection and also diabetes is a leading cause of narrowing and Hardening of the blood vessel in the feet and the smoking is main cause for atherosclerosis that mean the smoking was one from the risk factors for diabetic foot of the study sample patients.

The results shows that majority of the sample were score32 (38) patient who were accounted for (19%). The table indicated that if the score less than 30 mean there is unawareness (15%) in cumulative percent and the remaining (85%) were awareness.

The results show that there is no relationship between demographic characteristics with health care awareness that mean health care awareness for all.

The findings of the study sample indicated that the mean of score is low severity for items (2), and high severity for items (3, 4, 5, 8, 9, 11, 13, 17, and 18), and moderate on the remaining items.

This result agreed with another researcher who said that personal hygiene items were the key to prevent diabetic foot ulcer or reduce it<sup>(5)</sup>. National Diabetes Education Program reported that for the diabetic patient to check their feet for ( cuts, sores, red spots, swelling, and infected toenails), wash their feet in warm not hot water, dry their feet well, be sure to dry between toes, do not put lotion or cream between their toes, if they have corns and calluses ,check with your doctor foot care specialist, about the best way to care for them, do not cut corns and calluses, trim their toenails

with clippers after they wash and dry their feet (trim toenails straight across and smooth them with an emery board or nail file, don't cut in to the corners of the toenails), wear shoes and socks at all time (do not walk barefoot, always wear socks, choose clean, highly padded socks, check the inside of their shoes before they put them on, wear shoes that fit well and protect their feet), put their feet up when they are sitting, don't smoke<sup>(13)</sup>. Care plans should identify special care that is required for each person with diabetes e.g. nails, skin treatment, heel pads appropriate foot wear, extreme of heat should be avoided as this can cause skin damage<sup>(14)</sup>. Foot care was more common among insulin users than non users and those who self-monitored their blood glucose level daily than those who did not<sup>(15)</sup>. Increasing the chance of injury of the diabetic foot lesion resulted from a break in the skin leading to infection then must be treated at once<sup>(16)</sup>. The key to maintaining healthy feet is to prevent injury and foot problem by following: -Daily foot care quits.-wash the feet everyday with mild soap and dry it well.-Keep the toenails neatly trimmed. -Check the feet for any cracks, skin dry, cut, redness. -Report signs of ingrown toenails and swelling. -Avoid exposure to the sun with the protection of sunscreen.-Do not apply heating pad, do not cross leg, do not use hard equipment to smooth corns and never walk barefoot<sup>(17)</sup>. People with diabetes have to pay special attention to the health and care of their feet, with regular visits to their physicians for neurological, vascular and skin assessment<sup>(16)</sup>. Moderate of mean of score for personal hygiene it mean that the patients with diabetic foot were an aware for the complication of diabetic foot.

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